

**Green Generation**  
**Cobra Invitational**  
**January 30, 2016**

Use word Bank to answer questions 1 to 10.

- a. Carrying capacity
- b. Immigration
- c. Emigration
- d. Commensalism
- e. Parasitism
- f. Ecology
- g. Population
- h. Population crash
- i. Exponential growth curve
- j. Logistic (s) growth curve
- k. Carnivore
- l. Omnivore
- m. Food chain
- n. Food web
- o. Biosphere
- p. Nitrogen cycle
- q. Hydrologic cycle

\_\_\_c\_\_\_ 1. The movement of Individuals out of population.

\_\_\_a\_\_\_ 2. The maximum number of organisms that an environment can support.

\_\_\_d\_\_\_ 3. A type of symbiosis in which one organism benefits and the other one is neither harmed nor helped.

\_\_\_f\_\_\_ 4. The study of interactions between living things and their environment both biotic and abiotic.

\_\_\_g\_\_\_ 5. Group of organisms of the same species that live in the same geographical area at the same time.

\_\_\_i\_\_\_ 6. Growth that occurs at a rapid rate of increase over a period of time.

\_\_\_k\_\_\_ 7. Any animal that eats flesh.

\_\_\_n\_\_\_ 8. The system of interconnected food chain in a community.

\_\_\_o\_\_\_ 9. All of the earth's communities.

\_\_\_q\_\_\_ 10. Enters atmosphere by transpiration, evaporation; exits as precipitation

### Multiple Choices

11. During the exponential growth phase of bacterial growth, the population,
- a. Increase moderately
  - b. **Increase dramatically**
  - c. Decrease moderately
  - d. Decrease dramatically
  - e. Does not change
12. Competition for resources, within a population is called,
- a. **Intraspecific competition**
  - b. Mutualism
  - c. Neutral
  - d. Interaction
  - e. Interspecific competition
13. The local environment in which species lives is its,
- a. Ecosystem
  - b. **Habitat**
  - c. Fundamental niche
  - d. realized niche
  - e. Niche
14. Resource partitioning results in,
- a. Extinction of the least adapted species
  - b. Interspecific breeding
  - c. **Reduced competition among coexisting species**
  - d. Increased competition among coexisting species
  - e. Competition for niche among similar species
15. All food energy in the biosphere is ultimately provided by,
- a. **Producers**
  - b. Consumers
  - c. Nitrogen fixers
  - d. Phosphorus fixers
  - e. Decomposers
16. Which pyramid compares the total dry weight of the organisms in each trophic level,
- a. Number pyramid
  - b. **Biomass pyramid**
  - c. Energy pyramid
  - d. Ecological pyramid
  - e. Food pyramid
17. Phosphorus enters aquatic communities by means of
- a. Decomposers
  - b. **Producers**
  - c. Primary consumer
  - d. Secondary consumers
  - e. Erosion
18. Referring the figure below suppose 10,000 units of energy are available at the level of the grass, what is the total number of energy units lost by the time energy reaches the Coyote? **Remember 90% of energy is lost at every trophic level.**

Grass (trophic level 1) → Rat (trophic level 2) → Cat (trophic level 3) → Coyote (trophic level 4)

- a. 9,900 units
  - b. 990 units
  - c. 90 units
  - d. **9,990 units**
  - e. 1 unit
19. Select all that apply. Which of the following would be positioned at the top of a typical energy flow pyramid?
- a. Producer
  - d. **trophic level with the least number**

b. Consumer

e. tropic level with the least energy

c. the tropic level with the greatest biomass

20. Select all that apply. The main collector of the solar energy used to power life processes is/are the

a. producers

d. green leaves

b. atmosphere

e. photosynthetic organisms

c. hydrosphere

## **PART II**

### **Matching**

\_\_\_e\_\_\_ 21. organic pollution

a. radioactive materials

\_\_\_d\_\_\_ 22. inorganic pollution

b. waste heat from industrial and power generation processes

\_\_\_c\_\_\_ 23. toxic pollution

c. heavy metals and other chemical compounds that are lethal to organisms

\_\_\_b\_\_\_ 24. thermal pollution

d. dissolved and suspended solids as silt, salts, and minerals

\_\_\_a\_\_\_ 25. radiation pollution

e. decomposition of living organisms and their bi-products

Biomes are often characterized by the amount of rain they receive. Identify the following Biomes:

\_\_\_e\_\_\_ 26. >500 cm of rain per year

a. Grassland

\_\_\_c\_\_\_ 27. <25 cm of rain per year (warm)

b. Tundra

\_\_\_a\_\_\_ 28. 25 - 75 cm of rain per year

c. Desert

\_\_\_b\_\_\_ 29. <25 cm of rain per year (cold)

d. Deciduous Forest

\_\_\_d\_\_\_ 30. 70 - 150 cm of rain per year

e. Tropical Rain Forest

### **Fill in the blanks:**

31. The four components of soil are: minerals, organic matter, air, water

32. causes of desertification includes: **Overgrazing & poor grazing management**  
**Cultivation of marginal lands, Destruction of vegetation in arid regions, Incorrect irrigation practices leading to salinization**

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33. Most common chemicals involved in causing soil pollution are:  
**Petroleum hydrocarbons, Heavy metals, Pesticides, Solvents**

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34. Major causes of Deforestation (at least 3) **Conversion of forests to agricultural land to feed People, Development of cash crops and cattle raising, Commercial logging that is not regulated, Poor soils in humid tropics do not support agriculture for long so more clearing becomes necessary**

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35. Causes of Soil Pollution (at least 3) **Seepage from a landfill, Discharge of industrial waste into the soil, Percolation of contaminated water into the soil, Rupture of underground storage tanks, Excess application of pesticides, herbicides or fertilizer, Solid waste seepage**

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**Multiple choices:**

36. Which of the following practices would have the biggest impact on achieving global sustainability?

- a. Recycling aluminum cans
- b. **Using fuel-efficient vehicles**
- c. Replanting deforested areas
- d. Reducing human population size
- e. Developing ecotourism venues

37. Which of the following is the correct order of soil particles in order of increasing size?

- a. Clay—sand—silt
- b. Clay—silt—sand
- c. Sand—clay—silt
- d. Sand—silt—clay
- e. **Silt—clay—sand**

38. Which of the following is not a type of pollution?

- a. Water Pollution
- b. Noise Pollution
- c. **Oxygen Pollution**
- d. Soil Pollution
- e. Radioactive Pollution

39. Organisms in this biome must tolerate highly variable conditions.

- a. Tropical Forest
- b. Tundra
- c. Savanna
- d. Grassland
- e. **Estuary**

40. The Great Green Wall is a project in Africa that consists of planting a wall of trees to try to prevent the spread of a particular environmental problem. Which is the main problem the Great Green Wall is aiming to prevent?

- a. Deforestation
- d. **Desertification**

- b. Soil pollution
- c. Air pollution
- e. high population

### **Part III**

#### **Multiple Choice:**

41. The process of composting
- a. uses synthetic materials
  - b. has little potential to conserve landfill space.
  - c. is always carried out in city-ran facilities
  - d. could effectively handle variety of waste
42. Which of the following produces the most solid waste,
- a. manufacturing
  - b. plastic packaging
  - c. agriculture
  - d. nuclear power plants.
43. Which items makes the largest percentage of waste produced by households and businesses?
- a. aluminum cans
  - b. plastic bottles and packaging
  - c. paper products
  - d. yard waste, such as grass clippings, tree limbs
44. Which of the following is not considered hazardous waste?
- a. dead batteries such as those used in flashlights and radios
  - b. rotting meat and other food waste
  - c. metals such as lead and mercury
  - d. both (a) and (c)
45. Making product from recycled materials,
- a. is limited to metals
  - b. often saves energy and other resources during the manufacturing process.
  - c. uses so much energy that it is not economically workable
  - d. none of the above.
46. The fastest growing renewable energy resource today is
- a. nuclear
  - b. coal
  - c. wind
  - d. geothermal
47. Which of the following terms is not a unit of power?
- a. Watt
  - b. Horsepower
  - c. Joule
  - d. All are units of power

**Short Answers:**

48. What is the tragedy of the commons?

**When many parties exploit a common resource, each party assumes that their small contribution to the environment's degradation is negligible. The resource is then degraded permanently, and nobody can use it**

49. How can the tragedy of the commons be prevented?

**It can be prevented by government regulations to keep usage under the sustainable yield, and by privatization of resources.**

50. Why is a nonpoint source more difficult to control than a point source?

**A nonpoint source is more difficult to control, because it is difficult to pinpoint. It isn't shutting down one coal factory, rather, it is finding a way to reduce pollution across the board.**

**Tie breaker questions.**

51. Composting is most closely related to:

- a. **Nutrient Cycling**
- b. Natural service
- c. Reusing
- d. Garbage service

52. The methane found in landfills is a gas that

- a. is produced when wastes react with oxygen
- b. must be pumped to the surface in leachate pipes
- c. is a major contaminant of groundwater supplies
- d. **may be captured and used to produce energy.**

53. Energy derived from fossil fuels supplies approximately what percentage of the world's energy need?

- a. 10%
- b. 50%
- c. **85%**
- d. 99%

54. A grove of trees that originated from one seed displays

- a. uniform dispersion
- d. no dispersion pattern

b. random dispersion

e. a form of dispersion not found in nature

c. clumped dispersion

55. Select all that apply. Most carbon is fixed \_\_\_\_\_ and liberated \_\_\_\_\_

a. in proteins / as organic compounds.

d. in humus / by cyanobacteria.

b. in CO<sub>2</sub> / as complex compounds

e. by plants / by plants

c. in complex compounds / as CO<sub>2</sub>.